SOCIO-ECONOMIC STUDY OF THE PROPOSED SHELL OIL COMPANY PEARL MINE

INTERIM REPORT VOLUME 1

Executive Summary

Submitted To:

THE MONTANA DEPARTMENT
OF
STATE LANDS

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November 21, 1977

This report is in the preliminary Review Draft stage. As such it represents neither the final judgement nor the official position of the Meadowlark Group or the State of Montana.

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November 21, 1977

Honorable Leo Berry, Jr., Esq.
Commissioner
Montana Department of State Lands
Capitol Station
Helena, Montana 59601

Dear Mr. Berry:

I am submitting this day for your review, in accordance with the contract between the Montana Department of State Lands and the Meadowlark Group, the interim report of the socio-economic study of the proposed Shell Oil Company Pearl Mine. The interim report is in the form of working papers largely in the categories described in the Meadowlark Group proposal plus an executive summary which highlights our findings to date.

I estimate that our work is approximately 75% complete and I am confident of meeting our final report deadline of January 2. The uneven nature of the interim report reflects the various stages of completion of the several components of the task. It is clear, for example that the description of the existing environment is far more complete in most cases than either the assessment of impact or growth management strategies. In addition, more attention has been directed at the Sheridan portion of the impact area than the Big Horn area. And, some local services have been given more attention than others. I can assure you that this product is a function of time allotted to date and that the final report will provide the necessary balanced treatment of all facets of the problem.

Our schedule now calls for completing the individual research tasks and formulating the report in EIS format as full information is received. It is our intention, in the final report, to draft the results in as concise, readable and publicly understandable form as possible, leaving the bulk of supporting material for appendices. I would appreciate your comments as soon as possible regarding the content of the interim report.

Sincerely,

Lauren McKinsey

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LM:tl

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INTRODUCTION TO THE EXECUTIVE SUMMARY

This summary has been developed to serve several functions. First, it is a report on the progress of the Meadowlark Group in performing the socio-economic study of the proposed Pearl Mine. Second, it is a brief summary of the findings to date of the topical studies found in Volumes 2 through 9 of the phase I reports. Third, it presents the work outline which the Meadowlark Group will follow in the completion of this study.

The study has been partitioned into two major phases. Phase I involved the development of detailed topical reports as defined in the Meadowlark Proposal to the Department of State Lands, dated August 5, 1977, and the submission of the interim report. Phase II involves the review and finalization of the Phase I topical reports, the development of a concise and readable report in the EIS format, and the development and refinement of possible growth management strategies in facing the human impacts of coal development in the Decker/Sheridan impact area.

METHODOLOGICAL OVERVIEW

The approach taken by the Meadowlark team has been to develop topical reports in each of the areas included in the socio-economic impact study. These reports will develop and support the material to be included in the impact statement itself, and themselves constitute the detailed evidence to be included in the document's appendix. The specific methodologies employed, including assumptions, models, calibrations, techniques and information sources are explained in the topical reports. The purpose here is to provide a general overview of the sources of information and assumptions used in the study.

Considerable information regarding the baseline conditions was derived from a series of planning documents, including city and county comprehensive plans, prepared in 1976 and 1977 by the Sheridan Area Planning Agency. This evidence was augmented by studies of specific features and governmental functions performed by groups and firms for agencies of the local governments. Comparative data was obtained from state agency reports and documents comparing city and county data with statewide averages. Extensive interviews with local officials, community leaders, and company officials helped to complement and updata data. Finally, news coverage in the Billings Gazette and the Sheridan Press helped provide information and insights.

The final report will include a detailed bibliography of sources cited and a list of all interviews conducted with community representatives.

Volume 2: The Proposed Development and Study Approach

This report describes the Shell Oil Company's proposed Pearl Mine in terms of construction and operating work force, life of the mining operation, and so forth, and discusses the other coal-based developments in the general impact area which could occur concurrently. The report also describes the approach to socio-economic impact analyses; the role and scope statement utilized by the Meadowlark team in this effort.

Shell Oil proposes a twenty year productive life of a coal mine averaging two million tons per year of coal produced. The mine area is bounded to the south by the border between Montana and Wyoming, and to the west by the boundary of the Crow Indian Reservation. It is located entirely within Big Horn County, Montana. During the two year construction period prior to commencing production, the construction work force will require a total of 408.5 man-years of effort. Full time operating employment is estimated to be 134 persons.

Because of the likelihood of other coal-based development occurring in the impact area concurrent to Pearl Mine activities, three separate scenarios of other development were developed. These scenarios were quantitatively expressed in terms of coal mine output in tons of coal per year as well as full time employment during both the construction and operational phases. Besides a substantial level of coal mining activity, nearly all in the Montana portion of the study area, there is industrial planning occurring for the possible location of a 1000-2000 megawatt coal-fired thermal electric power plant on Prairie Dog Creek in Wyoming, just south of the Montana border.

The Role and Scope Statement examines the difficulty of assigning so-called costs and benefits of such a development. Three parallel problems surface: 1) quantification of the "people variables" in socio-economic categories is inherently subjective; 2) it is often difficult to determine whether a given impact is actually a cost, a benefit, or some combination; 3) the scope of the impact, either positive or negative may not coincide with the jurisdiction capable of alleviating the impact. The Pearl Mine illustrates each of these points, but poses particular problems in the case of the third. The interstate spillover effect, where the tax revenues accrue to the State of Montana, and the human effects caused by burgeoning populations and corresponding demands for government services and other resources fall into the laps of the State of Wyoming; particularly the City of Sheridan and Sheridan County.

Volume 3: Area Economy and Economic Impact

A. Delineation of the Model and Scenarios

The Coal Town II Model generates projections of economic activities and impacts which are related but not necessarily causal in nature to coal mining activities in Big Horn County, Montana and Sheridan County, Wyoming.

Specifically, the Model projects employment (number of miners, economic base, ancillary and total employment), population (county and town), tons of coal mined, consumer price index and employment-population ratio and migration. Additionally, the Model projects revenues for state, counties, school districts and town governmental units based on current statutes and regulations which are applicable within the specific govermental unit. Furthermore, projections are generated for expenditures, surpluses and/or deficits for each governmental unit. However, the Model does not consider the impact of the federal goverment relative to revenues generated through fiscal policies and federal expenditures in the impacted areas through grants, loans, etc.

The Model estimates the economic impacts for the identified local impact area of the Decker area of Montana, Big Horn County and Sheridan County, Wyoming. Economic impact estimates are generated for three sets of projected development alternatives. These alternatives are: (1) without Shell Pearl Mine with all miners residing in Sheridan County, Wyoming, (2) with Shell Pearl Mine with all miners residing in Sheridan County, Wyoming and (3) with Shell Pearl Mine with 50 percent of the miners residing in Big Horn County, Montana and 50 percent of the miners residing in Sheridan County, Wyoming. Within each set of alternatives, six subsets of economic impact estimates are generated. These estimates are generated for Montana and Wyoming based on low, probable and high development potentials.

The low development scenario is based on minimal development in the impacted area. It consists of activities which currently exist in the form of mining and development activities which have been approved and committed. Specifically, it includes Big Horn, West Decker, East Decker, North Decker, and the Public Service of Oklahoma mines.

The probable development scenario is based on the low development scenario plus the impacts of the proposed NERCO Spring Creek and Consolidated CX Ranch mines. This scenario generates estimates which are most probable for the current situation and proposals.

The high development scenario generates economic impact estimates based on the activities of the low and probable scenario plus potential developments which currently are not as progressed as the low and probable development activities. The specific additions to the scenario are Shell Oil Youngs Creek Mine in Montana, the Whitney and Welch Mines in Wyoming and Pacific Power and Light's projected electric generating plant in Sheridan County, Wyoming.

The Model generates annual estimates for the above mentioned categories (employment, population, revenue etc.) from 1975 to 1990 for each of the different potential development scenarios As such, each scenario's economic impact is delineated which provides for evaluations among proposed development alternatives.

The input data for the Model were inclusive of all activities through the base year of 1974. The data included current population, revenues and expenditures from each state, county, town and school districts, employment, coal production, and related data for the impact area required for the Model.

Volume 4: Population

Two methods of projecting population have been utilized: the ERS Coal Town II impact simulation model and the Meadowlark cohort survival model. A comparison of the results are shown in the following table. Depending upon assumptions employed and scenario chosen, the impact of the Shell mine can be seen to have mildly differing magnitudes: Under the low development scenario, the Pearl Mine is expected to generate an additional 789 persons under the Coal Town II model and 791 according to cohort/survival in 1985. Under this scenario, Pearl accounts for about 2,540 of the population increase to 1985.

Of the population increase between the present and 1985 under the medium development scenario, Pearl accounts for approximately 15%. In 1990, under the high development scenario, Pearl accounts for something less than seven percent.

TABLE: Popluation comparison, ERS Coal Town II Impact Simulation Model versus Meadowlark Cohort/ Survival Model, 1980, 1985, 1990; Sheridan County, Wyoming, with and without the Pearl Mine.

Scenario	Year	ERS - Coal Town II Without Pearl (with Pearl) Pearl Only	Meadowlark Cohort/Survival Without Pearl (with Pearl) Pearl Only
Baseline	1975	21,411	20,053
Low Development	1980	23,529 (24,066) + 537	21,785 (22,534) + 749
	1985	25,601 (26,390) + 789	23,262 (24,053) + 791
	1990	28,969 (29,551) + 582	23,904 (24,736) + 832
Most Probable Development	1980	24,239 (24,758) + 519	21,942 (22,691) + 749
	1985	27,127 (27,613) + 486	26,176 (26,967) + 791
	1990	30,887 (31,439) + 606	26,990 (27,822) + 832
High Development	1980	26,444 (26,367) - 77	22,567 (23,316) + 749
	1985	33,868 (34,411) + 543	28,852 (29,643) + 791
	1990	37,943 (38,568) + 625	32,509 (33,341) + 832

Volume 5: Land Use and Housing

The recent growth in the Sheridan area has accelerated the demand for commercial and residential land. The City of Sheridan has experienced significant increases in commercial land utilization. The CBD is at present a viable shopping area; however competitive areas are developing. North Main Street and Coffeen Avenue have developed into commercial areas which are competing with commercial establishments in the CBD.

Residential settlements in the City of Sheridan have been occurring at the extreme north and south ends of the city. Both of these developing residential areas are likely to include mobile homes and conventional housing. Mobile homes within the city are located primarily in mobile home parks. Most new housing is low density residential housing. Very few duplexes and apartments have been developed. Low density development makes service provision more expensive.

The City of Sheridan has a large amount of vacant land in which to accomodate growth; however, it needs to provide services within those areas and this a limiting factor.

In Ranchester and Dayton, extremely rapid growth has taken place. In Ranchester nearly all the available vacant land has been used up and the city must wait for its sewer system to be improved before it can annex any additional land. In Dayton, there is still some vacant land left. The community is encouraging the construction of low and medium density residential development. Both Ranchester and Dayton have attempted to prevent addition of additional mobile homes through zoning.

High city land prices and taxes and land use restrictions have stimulated the subdivision of rural lands. Much of this land is prime agricultural land. This is having a detrimental effect upon local agricultural activities. The market values of rural agricultural land has also increased, creating an incentive for small farmers and ranchers to sell their land for subdivision use.

Prior to the Decker coal development, Sheridan area housing was characterized as being owner-occupied, older, single family and reasonably priced. Recent population growth has caused much new housing to be developed, but not at a rate equal to the increase in demand. The vacancy rate, which prior to the coal mining was high, has become very low, signifying a severe housing shortage.

While it is not likely to be abated in the near future, in any of the scenarios developed involving the Pearl Mine, this problem is shown to be serious.

Volume 6: Social Structure and Values

Three sources of information have led to the preparation of this section. These sources are first, formal interviews collected by the Institute for Social Research and reported in the Decker Mines Impact (U.S. Department of Interior 1977) Statement; second, informal interviews with

residents in Sheridan and surrounding Wyoming communities and; third, questionnaires completed by Decker - Birney residents in 1974 and again in 1976. Collectively these information sources employ differences in data collection techniques and help to provide diverse input.

The study area is composed of two rather distinct subareas. First, the Decker area in the immediate vicinity of the proposed mine, until recently has been a ranching and farming area with low population density. Within Big Horn County, however, considerable social diversity has been evident. Adjoining the Decker area is the Crow Indian Reservation with its unique social legacy somewhat isolated from other locations in the area. Also located in Big Horn County is Hardin, the County seat and largest municipal area in the county, located approximately eighty (80) miles from the proposed mine. Significant impacts from the proposed mine are not anticipated in either of these latter locations because of inavailability of nearly all provisions for goods and services. Second, the Sheridan area between the Wyoming - Montana state line and the city of Sheridan remains primarily a ranching area although the expansion from the city of Sheridan promises to convert much of this land into residential uses.

In addition to differences in the physical characteristics of the Sheridan and Decker areas, rather apparent differences in sympathies regarding coal development in these areas exist. In the Decker area there has been considerable opposition to coal development, although it is less organized than in some Montana communities. This lack of organized opposition probably seats on several factors, including the long distances between ranches, the economically depressed state of the cattle industry and the 1936 construction of the Tongue River Reservoir which led to out migration by many persons. Immediately north of the Decker area is one of the most strongly organized Montana ranching communities opposing coal development. In 1974, rural and agricultural residents throughout the entire Decker - Birney Area expressed strong opposition to coal development (Jobes and Parsons, 1975). For example, 80 percent of rural residents disagreed that strip mines were good for Montana and 70 percent did not feel area residents would be better off becasue of coal development. 50% felt there were enough strip mines in Motnana.

The negative feelings regarding cost development in the rural Decker - Birney area are both specific and diffuse. Rural respondents are likely to express fears and disapproval of a wide variety of specific changes in the physical and social environment. They also seem to have a general practical set which reinforces and in turn is reinforced by those specific matters. (See Appendix)

Proposed and existing coal development, therefore, have had and continue to have their impacts on area ranches in Montana. It is a time for them to reassess their values and to consider alternatives to their current means of livelihood in the Decker - Birney area as well as to evaluate their interpretation of quality of life.

Interviews with major Sheridan decision makers left the impression that most Sheridan area persons wanted future mine expansion and that no undesirable consequences beyond the control of the community would follow

such expansion. These impressions are supportive of the survey taken two years earlier by the Institute for Social Research (1975). Although most (81%) felt costs would increase, as they have, most (54%) also felt there would be more jobs and that decisions would remain under local control. Still, a large number of persons expressed reservation concerning development. 57 percent said they would be less safe than they had been, 45 percent did not feel Sheridan would be a better place to live, which rather summarizes the percent ranging between 41 and 48 that shopping facilities, medical, dental and ambulance services and city government would be adversely affected. In any case, 52 percent said they would not oppose the expansion being investigated, while 35 percent said they would like more information before making up their minds. Generally, then, Sheridan residents support mining development although support is somewhat ambiguous. The support appears largely to be based on the faith that positive consequences of increased employment opportunities and income will offset adverse life style effects. These perceptions probably will be accurate for some categories of Sheridan respondents while being inappropriate for others. For example, miners and persons in other newly generated positions maybe expected to benefit financially in comparison to indigenous residents who do not fall into these employment characteristics or into local business. These other residents may be vulnerable to negative effects from mining development. Several examples illustrate such problems. First, the wages in the area may be detrimental to employers relying upon low income labor. Such employers, particularly the agricultural and personal service sectors may find themselves priced out of competition for low income labor. Second, higher wages in the face of limited provisions for goods and services may make it difficult for many local residents to obtain satisfactory goods or services. Persons on fixed incomes, particularly the elderly and persons of marginal economic status, may find costs increased by relative scarcity beyond their means. This implies a potentially marked reduction in their activities or the necessity to change communities, unless migrating activities are provided in their behalf.

Its sentiments, and problems, therefore are considerably different form those of the potential impact site near Decker. Sheridan must now concern itself with the accomodation of large numbers of new persons by incorporating them into existing or developing structures. Many rural persons near Decker must consider a major modification in their style of life.

Volume 7: Social Services

The preliminary report deals with the variety of governmental services which are currently delivered in the impact area. Attention is centered on the Sheridan County impact portion and upon those services which are most crucial. At this point, the description of the existing environment is nearly complete while the assessment of impact awaits synthesis of detailed information from parallel reports on economy, population and settlement. The following is a note on impact assessment methodology which provides the parameters for the final report.

Impact Methodology

There is no single, universally agreed-upon measure of the impact of population growth upon service delivery mechanisms. In some cases, the costs will be linearly associated with population growth; in others there will be peaks and plateaus. Short term impacts can be quite different than long-term.

For each service area, we will be concerned with the following:

(a) Is the expected population distribution likely to impose a relatively greater or lesser impact on the particular service, compared with other services;

(b) Will the impact be linear, essentially an impact upon operating costs, or;

(c) Will the impacts be felt upon capital outlays and when;

(d) Which impacts seem to be unavailable for local governments; which can be "ignored" or displaced on the private sector; which can be made the responsibility of another level of government;

(e) How is the impact upon this service related to impacts upon other services.

The following matrix provides a checklist of services studied according to the local jurisdiction principally involved in the service delivery.

LOCAL GOVERNMENT SERVICES CHECKLIST*[1]

	Sheridan Co.	Sheridan	Ranchester	Dayton	Big Horn
Law enforcement	x	x			x
Schools	x				
Fire	x	x	x	x	
Water & Sewer	x	x	x	x	
Solid Waste		x			
Social Services	x				x
Health Services	x				
Library	x				
Roads/Streets[2]	x	x	x	x	x
Recreation[3]	x	x			x

*1 Since community services are the responsibility of a local governmental entity, the impacts are considered in the context of one or more of five local jurisdictions.

2 Dealt with in a separate volume.

3 Dealt with in a separate volume.

It cannot be said with reliability which particular communtiy services will be impacted relatively more than others. This determination is partly a function of how neglected the service capability has been in the recent past and how important planning for expected impact is to citizens and decision-makers today. Among the services provided in Sheridan County the following are likely to receive the greatest impact: Fire protection, school (construction), law enforcement (facility), sewage disposal and social services. For the most part this is because of lags in facility construction. Among the services least likely to be immediately impacted are library, solid waste disposal and water supply, because capacity is high or planned improvements are underway already. The remainder of services will likely be impacted in rough direct proportion to population increase in the respect of escalating operating costs.

Volume 8: Transportation

An impact of the initiation of mining in the Decker, Montana area has been to cause increases in vehicular traffic and changes in travel patterns. The increase in traffic volumes has primarily been due to a numeric increase in population and changes in the demographic profile of area residents - larger households and greater automobile ownership. Changes in travel patterns are attributable to changes in land use patterns in the area - the location of a major new employer in the Decker area and rural subdivision development.

Increases in traffic volumes have been dispersed throughout the impact area, which may have mitigated some of the overload potential of the recent increases. At the present time the roadway system is functioning adequately. Certain roadways, Coffeen, Highland, Big Horn, Main, Fifth, and Big Goose have experienced substantial increases in traffic volumes. If traffic volumes continue to increase on these roadways, they will begin to approach their carrying capacities at which time travel speeds will decline and the frequency of accidents will increase.

Roadways on the rural or urban Federal Aid System have monies available to insure most necessary maintenance and improvements. City and county governments are having difficulties in financing the maintenance and improvement of roadways which do not receive federal aid. A special problem is the payment of special improvement district assessments by elderly and low income residents. The non-acceptance of roads in rural subdivisions is creating another problem, because these roads are being poorly maintained and many will eventually require rebuilding.

The obsolescence of and need for new roadway equipment is a problem shared by all communities in the impact area. Ranchester and Dayton, whose populations have doubled in the last five (5) years are experiencing much higher demands for road services, as is Big Horn which, because it is unincorporated, has no legal mechanism to deal with the problem directly. The same problem is occurring in the urbanizing areas in the Big and Little Goose Creek Drainages.

Changes in land use patterns, particularly in the locations of the mine sites have caused a considerable increase in north-south traffic. During peak travel periods (7:00-8:00 a.m. and 4:30-6:00 p.m.) congestion occurs in the northern sector of the city of Sheridan where motoring traffic converges and evening traffic begins to disperse.

Rural residential development has caused increased usage of rural roadways and this shift in use has created some difficulty in the movement of agricultural machinery. Most of the rural roadways which are experiencing significant subdivision activities are linked to roadways within Sheridan. These roadways tend to funnel non-Sheridan destined traffic on to the Sheridan Urban System.

Commercial development on North Main and Coffeen have also changed traffic patterns. The discount store just opened on the extreme north end of the city will soon be a substantial traffic generator. The mixed commercial uses on Coffeen are generating increasing amounts of traffic. These volumes will continue to increase as the "strip development" fills in and Sheridan College experiences its anticipated growth. A particular concern regarding Coffeen is its curved route and the existence of non-perpendicular intersections. The roadway is likely to become very hazardous with increased traffic congestion.

An over riding concern regarding the roadway system in the Sheridan - Decker area is the area's failure to develop a comprehensive transportation strategy. Land development is following roadway access. The pattern of roadway construction is and will continue to influence present and future land use patterns and government service requirements. The system design is being developed incrementally as reactions to problem situations, rather than being used as a tool to guide spatical patterns. The implications of system development are not being examined as they relate to overall community goals.

If only mines which are approved at the present time are initiated, traffic volumes within Sheridan County can be expected to increase by 8.6 percent between 1975 and 1980, 12.4 percent with approval of the Pearl Mine. As mining and derivative employment continues to grow, traffic will increase by 19.2 percent by 1990 and 26.2 percent by 2000. With approval of the Pearl Mine, the increases will be 23.4 percent and 29.3 percent respectively. With the exception of the Public Service of Oklahoma's Ash Creek Mine, the mines in Scenario I are located in the Decker area of Montana. A gravity model indicates that most workers in the Decker area will locate their householdsin the Sheridan urban area, with most of the remainder located to the south and west of the city. The Ash Creek employees, because of the mine's location adjacent to the Pearl Mine will locate their households in a pattern very similar to the pattern anticipated for Pearl employees, majorities settling in Sheridan with a higher settlement rate in Ranchester and Dayton.

The increases in traffic volumes predicted by Scenario I will complicate an already difficult situation for cities and the county. An 8.6 percent increase in traffic, if uniformly applied, would not quite push Main Street

beyond its carrying capacity - nor would the increment added by the Pearl Mine; however, the increases would probably lower individual travel speeds and increase accident frequency on the roadway. Congestion and accident levels on Fifth Street and Highland Avenues must also be anticipated to increase. Coffeen Avenue has a particularly serious accident potential because of the high levels of traffic it will be carrying, its developing commercial strip, and the roadway's design limitations.

Scenario II would have a similar effect to Scenario I into the early 1980's; however,during the middle of the decade employment would increase substantially, causing a corresponding increase in vehicle trips. In 1985, there would be a 30.5 percent increase in vehicle travel in Sheridan County; with the Pearl Mine a 34.5 percent increase. Assuming present travel patterns and roadway conditions, a 30 percent to 35 percent increase would probably overload many roadways in the system. In particular, Main Street and Fifth Street would not meet traffic demands. Other roadways, Highland Avenue, Danna Avenue, Sheridan Avenue, and Big Horn (all north-south) would probably become heavily congested. As identified arterials and collectors approached capacity, local urban streets would be used increasingly by through traffic. This would have a disruptive effect on residential neighborhoods.

Scenario III would generate extreme increases in traffic volumes in the impact area. The mines and power plant included in this scenario are, with the exception of the Youngs Creek Mine,located in the northern part of Sheridan County. Sites for the power plant and the Whitney Mine are located near the Decker Road and Lower Prairie Dog Creek Road. Most workers from the plant and mine will follow the patterns established by Decker area workers; although Lower Prairie Dog Creek should attract a larger share of their households. The Youngs Creek and Welch Mines would have their greatest impact on the Sheridan and Ranchester -Dayton Area, particularly if a Monarch to Ash Creek road is constructed.

Scenario III would cause a 12.5 percent increase in traffic volumes by 1980; a16.3 percent increase with the inclusion of the Pearl Mine. In the early 1980's the employment would be increased exponentially and this would cause a tremendous increase in traffic generation in the area. By 1985 traffic volumes could be expected to be 45 percent to 48 percent greater than in 1975. All major urban arterials and collectors would be operating at or in excess of their carrying capacity. By 1990 traffic volumes would have increased by 60 percent and by over 70 percent by 2000.

Traffic flow increases as are projected in Scenario III would radically alter the use of the urban and rural roadway systems. Subject to existing financial limitations the local governments could not maintain or improve roadways adequately. Under Scenario III, roadway travel could be anticipated to deteriorate to a very low quality of service.

Volume 9: Growth Management Strategies

The Pearl Mine, located in Montana, but impacting the Sheridan, Wyoming area, poses unusual problems in the formulation of growth management strategies. For this reason, computer simulation runs have been made assuming

that essentially all of the Montana workers will reside in Wyoming, and under the possibility that a new settlement could be established, that essentially fifty percent of the Montana-based workers could live in Montana. The growth management strategies recognize that with the divided responsibilities for approving the mines and providing public services, there must be an atmosphere of cooperation between the States of Montana and Wyoming, the Counties of Sheridan and Big Horn, and the private energy development companies and the governments involved. The possible growth management strategies which are presented are divided into classes as to which governmental organization could implement them, whehter they are currently available to governments or would require extensive study or legislative changes.

Recommendations for the growth management stratgey are presented in three groups:

Group A - High Priority Recommendations Which are Currently Available -- By Montana Alone, Wyoming Alone, or by Joint Action of All Governments Involved

(1) Organize to obtain information of the development and employment plans of the companies and to identify potential impacts. JOINT ACTION

(2) Stage development so that impacts are spread out evenly over proposed development period for all mines. MONTANA

(3) Strengthen development controls, especially those for the siting and standards of mobile homes and mobile home parks. WYOMING COMMUNITIES: Sheridan County and Cities.

Group B - Recommendations Which Require Extensive Study or Changes In State or Federal Legislation -- By Montana Alone, or Montana and Wyoming by Joint Action

(4) Investigate the potentials of an interstate agreement under proposed federal legislation on energy development impact assistance. MONTANA AND WYOMING JOINTLY

(5) Consider the potential for a New Settlement in Montana to provide a place of residence in-State for Montana workers. MONTANA, with Montana energy companies

(6) Require company responsibility for construction worker impacts under the mine permit process. MONTANA

Group C - Examples of Energy Development Responses Which are Currently Available to Wyoming Local Governments

(7) Plan for temporary services and facilities for the impacts of the construction phase. WYOMING COMMUNITIES

(8) Establish training programs for local residents and encourage local hiring. WYOMING COMMUNITIES

(9) Prepare Capital Improvement Programs for long-range population increases. WYOMING COMMUNITIES

(10) Preserve the prime agricultural lands, especially along the river areas. SHERIDAN COUNTY

Also examined was the possible strategy available to local service providers of contracting out with a private provider for service deivery. It is often the case that a public agency can contract with a private firm or other governmental unit to provide services more efficiently than if the agency itself staffed up and acquired the necessary capital to provide the services itself. While the study is of a more theoretical nature, it concludes that this strategy holds promise for the mitigation of problems with growing public service demands. Contracting out provides the potential for direct cost savings due to competition and entrepreneurial incentive, together with added flexibility in planning.

PROJECT PLAN: PHASE II

This section describes the management plan of the Meadowlark Group in completing the development of the socio-economic impact statement on the proposed Pearl Mine.

The work remaining falls into three major categories: topical reports, environmental impact statement, and growth management strategies. Each of these major components is discussed in Figure 1, the Phase II timeline.

A. Topical Reports.

The various topical reports will be subjected to internal review by the Meadowlark team and external review by the Department of State Lands. Any information gaps should be identified as soon as possible so that information gaps can be filled in a timely fashion. The period of December 5-12 has been highlighted as the period when identified information gaps can be filled and any questionable information can be validated by informed sources, generally local. If necessary, a Meadowlark research associate will be dispatched to the study area to assemble any needed information. See Phase II Timeline, Figure 1.

B. EIS Development.

This study is being performed as a requirement under the Montana Environmental Policy Act. It will serve as the basis for a formal environmental impact statement as required by law. This EIS will, in all probability, be issued as a joint EIS of the State of Montana and the U. S. Department of the Interior. Since the Montana Environmental Policy Act was patterned directly after its federal counterpart, the format is the same. Each law requires that seven key topics be examined in the overall environmental evaluation.

One of the recurring criticisms that has been directed at environmental impact statements in Montana and throughout the nation has been that they are inaccessible to the general public. The large numbers of pages and the quantitative presentations are forbidding to the laymen, and work against his understanding the essence of the environmental trade-offs being made, and of course work against his communicating his feelings, observations, and recommendations to the appropriate governmental officials. There is a growing movement to try to make environmental impact statements more readable and thus more accessible to the public at large. One approach is to prepare a summary report of a larger EIS document. Another is to prepare detailed in-depth topical studies in the major areas of concern, and then draw on them for the summary report in the EIS format. This is the approach which has been selected by the Meadowlark Group. The key objective in writing the final EIS report is to develop a document which is both factual and readable. It must adhere to the legal format of an EIS. It will be adequately referenced to the professional topical reports which serve as its basis so that the reader with a specific interest or concern can penetrate the mass of technical material to his own point of interest. The EIS report should make thoughtful use of graphics to distill the essence of the environmental effects and trade-offs associated with the proposed action.

FIGURE 1: Phase II Timeline, Pearl Mine EIS

		November	December	January
Topical Reports	Submit Interim Report	21		
	Review & Finalize Topical Reports	21----------	----------16	
	Local Area Validation		5--------12	
	Final Topical Reports to P.I.		16	
Environmental Impact Statement	Develop EIS Mockup	21-------28		
	EIS Component Development by Team Members	28-	----------12	
	Internal Draft EIS Due		12	
	Internal Review & Comment		12----------19	
	Final Internal Draft		26	1-16
Growth Management Strategies	Problem Inventory	21-------28		
	Solution Formulation	28-------5		
	Review		5--------12	
	Local Area Follow-through		15,16	
	Final Writing		19--------26	
Final Report	Final Typing		16----------	----------2
	Submit Final Report			2

FIGURE 2: Environmental Matrix

Volume	Title	1. Existing Environment	2. Environmental Impacts of the Proposal	3. Mitigating or compensating measures	4. Adverse and unavoidable impacts of the proposal	5. Relationship between short-term uses & long-term productivity	6. Irreversible & Irretrievable commitments of resources	7. Alternative to the proposed action
1	Executive Summary							
2	The Proposed Development & the Study Approach							
3	Area Economy and Economic Impact							
4	Population							
5	Land Use and Housing							
6	Social Structure and Values							
7	Social Services							
8	Transportation							
9	Growth Management Strategies							
10	Recreation and Aesthetics							

The major categories of an environmental impact statement are:

1. Existing environment.
2. Environmental impacts of the proposal.
3. Mitigating or compensating measures.
4. Adverse and unavoidable impacts of the proposal.
5. Relationship between short-term uses of man's environment and the maintenance of long-term productivity.
6. Irreversible and irretrievable commitments of resources.
7. Alternatives to the proposed action.

Figure 2, the environmental matrix, displays the approach in making the transition from the topical professional papers to the EIS format. Each topical paper will be examined using the EIS matrix for material to be incorporated into the EIS summary report. The major steps in its development include: A. Develop a mockup of the EIS summary report using the environmental matrix; B. EIS component development by individual team members; C. Internal assembly and review for finalization into a summary EIS report.

C. Growth Management Strategies.

One of the unique features of this socio-economic impact study is the conscious attempt to approach the problems of human impact from a solution-oriented perspective. This has been done in the Phase I effort to some degree, and is reflected in Volume 9: Growth Management Strategies. With the completion of the first drafts of the topical reports, they will each be reviewed from the standpoint of the identification and inventory of human impact problems from a solution-oriented perspective. The approach will be to systematically comb through the Phase I reports seeking to amplify the inventory of human impact problems, to attempt to formulate possible solutions to the identified problems, and to seek review and commentary from team members. Following this, the team intends to make a final formal contact with local officials and opinion leaders. At that time, preliminary findings and growth management strategies will be presented and critical comments will be sought. Subsequent to this local area follow-through, the final report on growth management strategies will be written.